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DISCLOSURE TITLE: Flux Guide/Tunnel Valve Structure With
Conducting
Contiguous Junction

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DISCLOSURE TEXT:

Disclosed is a new flux guide/tunnel valve structure which achieves conducting contiguous junction between the flux guide and the tunnel valve sensor. The conducting contiguous junction will provide higher flux coupling efficiency compared to the prior art insulating contiguous junction. In addition, the new structure provides straight side walls for the front flux guide implying better track width definition.

The process sequence/steps for the new structure is:

1. Deposit bottom ferromagnetic shield.
2. Deposit insulation, flux guide, and insulation.
3. Pattern flux guide (etch flux guide only), deposit hard bias and insulation over the hard bias. The structure at this point is shown in Fig. A.
4. Pattern tunnel valve, etch flux guide and insulation down to shield. The structure is shown in Fig. B.

5. Deposit tunnel valve with free layer at bottom.
6. Pattern tunnel valve, and deposit insulation/hard bias/insulation. The structure is shown in Fig. C.
7. Deposit top ferromagnetic shield.

The shields make electrical contact only to tunnel valve.

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